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AMERICABRYA, A NEW GENUS OF ENTOMOBRYIDAE (COLLEMBOLA), WITH A REDESCRIPTION OF *A. ARIDA* (CHRISTIANSON AND BELLINGER) BASED ON MEXICAN SPECIMENS AND DESCRIPTIVE NOTES FOR *A. EPIPHYTA* (LORING)

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Abstract.—The new genus *Americabrya* is proposed for the three New World species formerly placed in *Janetschekbrya* Yosii. This taxon is differentiated from *Janetschekbrya* by scale structure and its less abundant head and body macrochaetotaxy. *Americabrya arida* is reported for the first time from Mexico and is redescribed. Although the various Mexican populations of this species differ considerably in pigmentation and may belong to several species, no consistent morphological differences were detected between them, or with paratypes of *A. arida*. A few complementary notes to the original description of *A. epiphyta* are given based on a specimen from Peru. A key to the species of *Americabrya* is included.

The genus *Janetschekbrya* was proposed by Yosii (1971) for two Himalayan species similar to members of the genera *Entomobrya* (subgenus *Himalanura*) and *Willowsia*. *Janetschekbrya* differed from the first genus by the presence of scales and from the second by the very different scale morphology.

Janetschekbrya was first reported from the New World by Palacios-Vargas (1979), but the first American species was described by Christiansen and Bellinger (1980), who erected *J. arida* for specimens collected in three localities in Arizona, New Mexico and Texas (southwestern United States). These authors noted that the Himalayan species have a chaetotaxy very different from that of *J. arida* and that there is also a marked difference in scale structure. They suspected that Yosii's species and *J. arida* were not closely related, but chose not to erect a new taxon for their species.

The second New World *Janetschekbrya* was described by Snider (1981) from specimens collected in Costa Rica. This author remarked that his species did "not exactly fit the genus as described by Yosii" but preferred not to erect a new genus until additional species were discovered. Loring (1984) described *J. epiphyta* from Peru and also commented on the similarities between the New World species compared with those from Himalaya. Loring stated "Further examination of these species (New World) is necessary because the Asian and American species may belong to different genera, particularly in light of their known distribution."

Our analysis of the literature and of specimens from the United States, Mexico, Nicaragua and Peru convinced us that the American species of *Janetschekbrya* should be placed in a different genus, for which we propose the name *Americabrya*. This

taxon is probably widespread in the Neotropics but may have previously been undetected because its species are apparently more abundant in the vegetation than in leaf litter, which is the habitat most frequently sampled.

DESCRIPTIONS

Americabrya, new genus

Species formerly placed in Janetschekbrya which possess non-ciliated scales with two distinct longitudinal ribs (Figs. 6, 11). The new taxon also differs from *Janetschekbra* by its less abundant head and body macrochaetotaxy and by the presence of smooth prelabral setae (ciliated in *Janetschekbrya*).

Type species. Janetschekbrya arida Christiansen and Bellinger, 1980.

Americabrya arida (Christiansen and Bellinger), **New Combination**

Figs. 1–21, 26, 27

Janetschekbrya arida Christiansen and Bellinger, 1980:918–919, fig. 751A–H. Palacios-Vargas et al., 1982:141, as cf. *arida.*

Janetschekbrya sp. Palacios-Vargas, 1979:42. Palacios-Vargas, 1981:90.

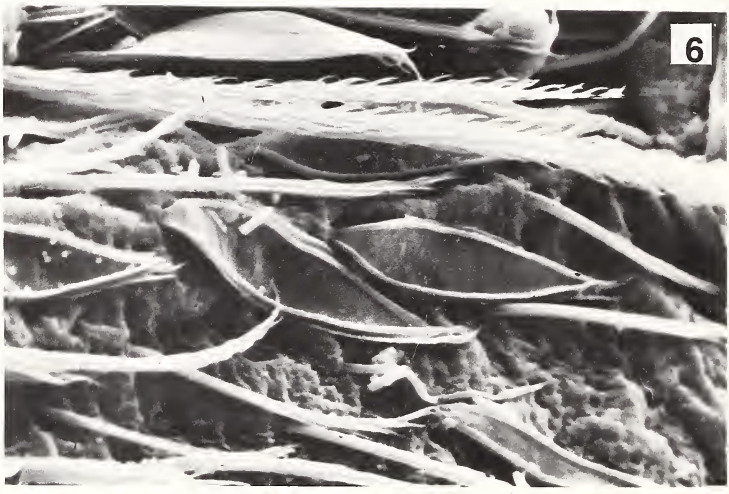
It is with much apprehension that we place under this species all our Mexican material. Members of various populations, or single specimens from isolated populations, possess color patterns that differ markedly from that of typical *A. arida.* However, we have failed to detect a single consistent and reliable morphological difference between any of these populations, or between them and the paratypes of *A. arida* that we have studied.

All the specimens collected at 3,900 m on the Popocatepetl volcano present the color pattern shown in Figure 1 (form B). Individuals differ in the intensity of the pigment but even the lighter specimens possess the conspicuous, wide middorsal stripe that extends from the second thoracic segment to the third abdominal segment. At 3,000 m on the same volcano, the specimens are either completely pigmented (Fig. 2, form C) or have the thorax almost completely white (Fig. 3, form D). One specimen is white except for the eyes, antennae, venter of body and a light dorsolateral band on the third abdominal segment. Another individual is similar to form B but lacks pigment to the sides of the middorsal stripe.

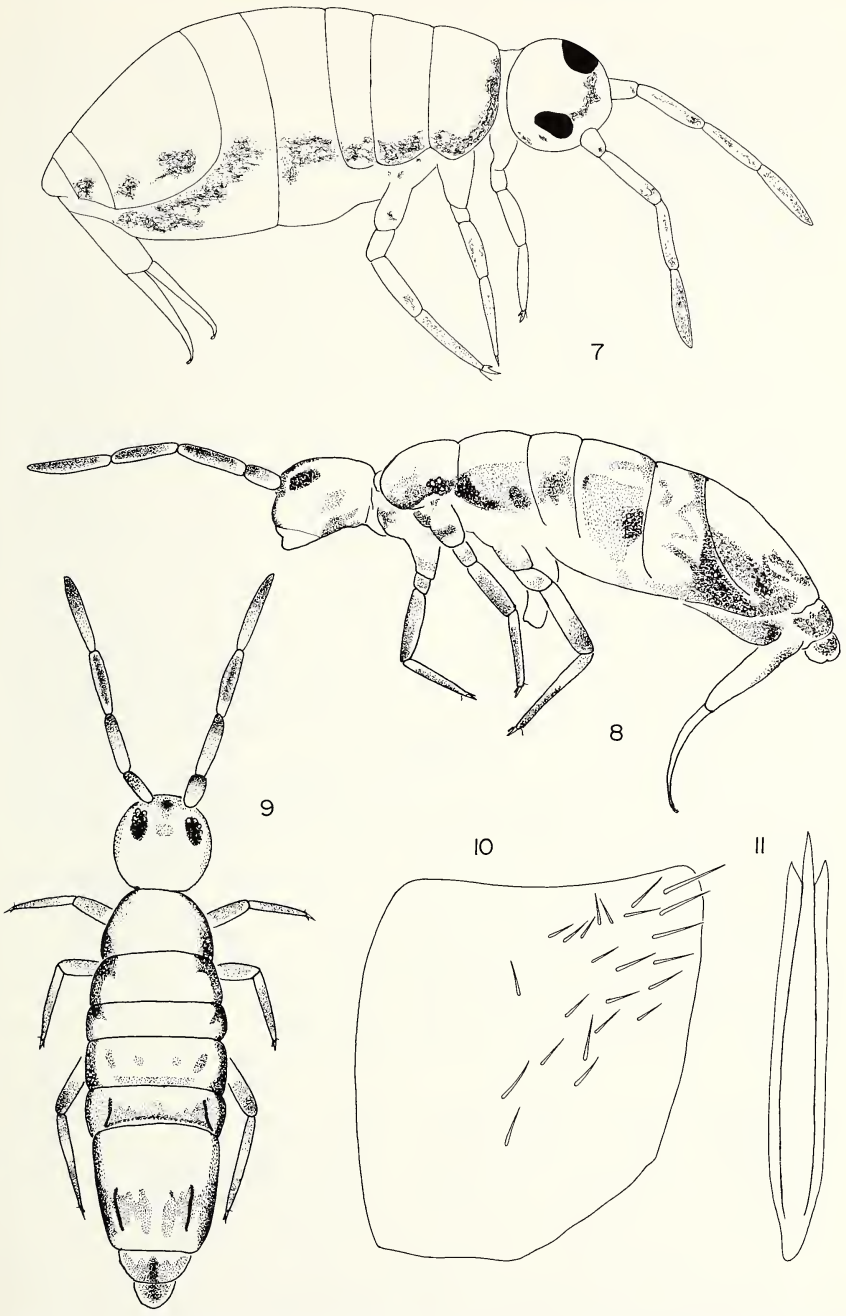
The specimens from the other Mexican localities may be referred to forms C and D but the intensity of the pigment is usually reduced, sometimes until the animals appear uniformly light blue or almost white. Three exceptions are the specimens from Baja California, which possess a longitudinal band along the sides of the body and a dorsal transverse band on Abd. 3 (Figs. 8, 9, form E); a single specimen from Chalcatzingo, which has only a lateral longitudinal stripe on each side of the body (Fig. 7, form F); and the five specimens from Guerrero, which possess a pigmentation identical to that of typical *A. arida* (cf. Figs. 4, 5, form A). Our five specimens from Nicaragua are uniformly light blue.

The following redescription of *A. arida* is based on 10 specimens from the Popocatepetl volcano (form B) but the morphological details apply to all the material listed after the description.

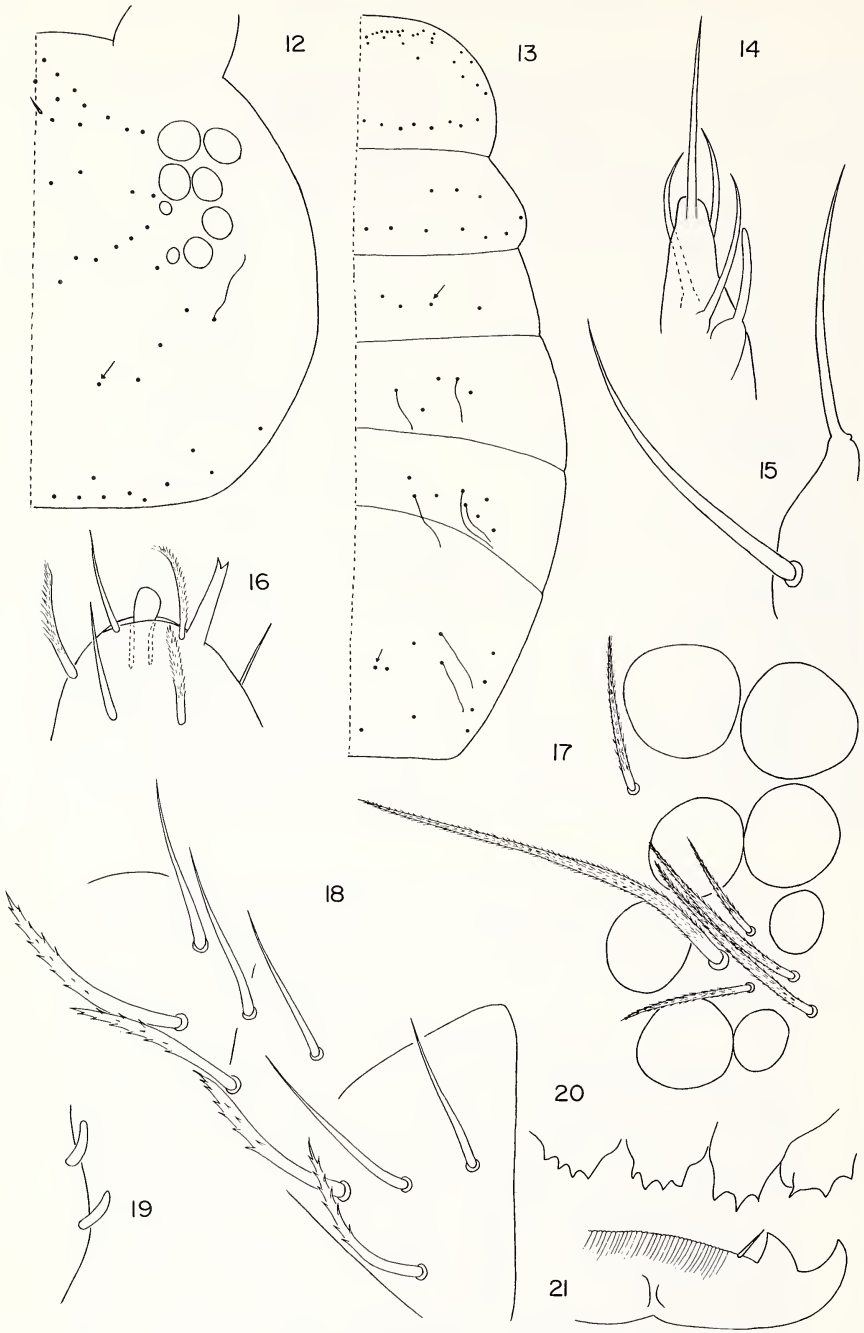
Figs. 1–3. *Americabrya arida*. 1. Form B. 2. Form C. 3. Form D.



Figs. 4–6. *Americabrya arida*. 4. Form A, specimen from New Mexico. 5. Form A, specimen from Mexico (Guerrero). 6. Scales.



Figs. 7–11. *Americabrya arida*. 7. Form F. 8, 9. Form E. 10. Trochanteral organ. 11. Scale.



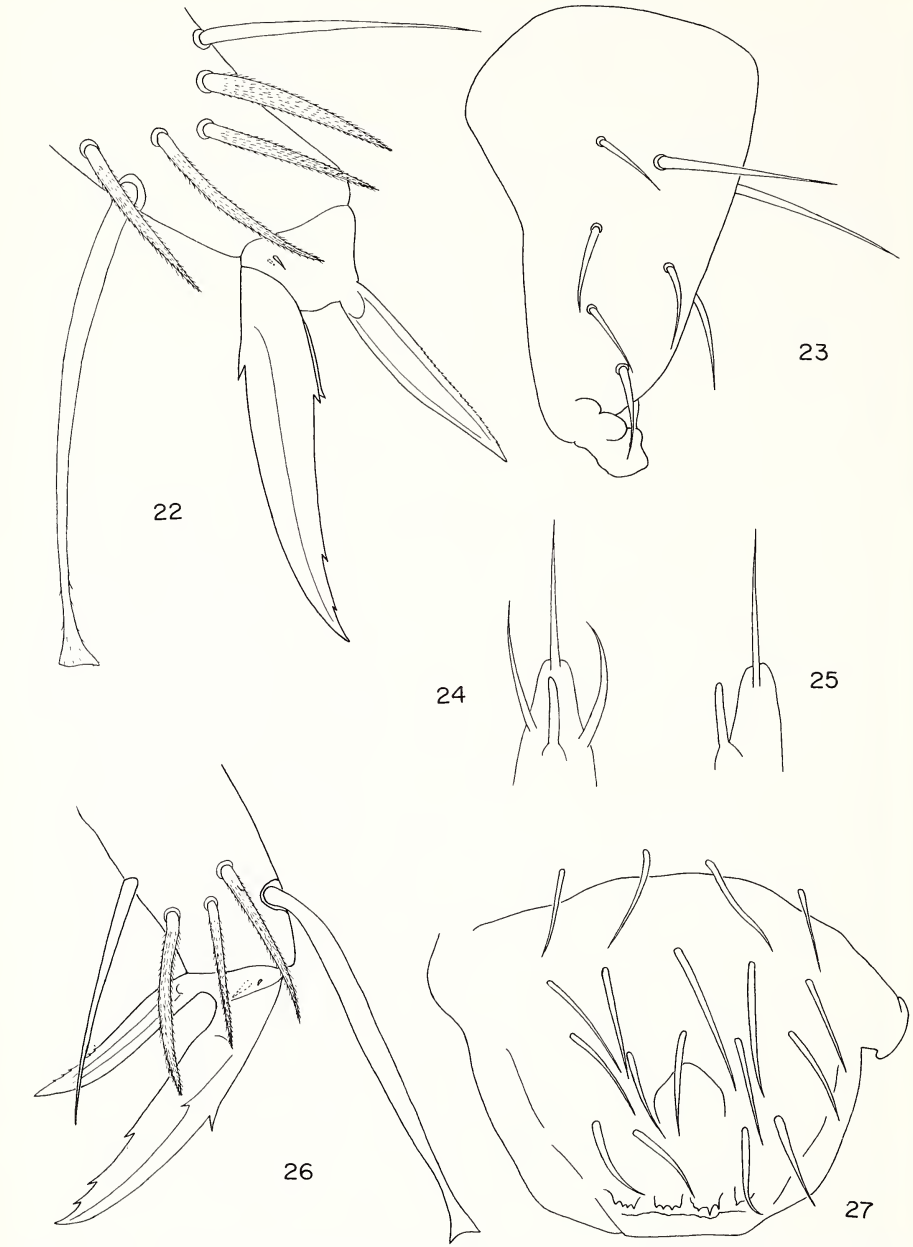
Figs. 12–21. *Americabrya arida.* 12. Distribution of head macrochaetae, arrow signals a seta that was absent on both sides of the head of one specimen. 13. Distribution of body macrochaetae, arrows signal setae that were absent on both sides of the body of one specimen. 14. Outer labial papilla. 15. Maxillary palp. 16. Apex of Ant. 4. 17. Eyes and distribution of interocular setae. 18. Labial chaetotaxy. 19. Sensillae on apex of Ant. 3. 20. Labral papillae. 21. Mucro.

Length to 2.45 mm. Intensity and distribution of violet pigment as in figure 1 (but see preceding discussion). Head and body with numerous ribbed scales that are absent from antennae, legs and abdominal appendages. Antennae 2.4× longer than head, relative lengths of segments: 1:2:2:2.3. Apex of Ant. 4 with a 2-pointed pin seta and a simple sensilla placed in a deep depression (Fig. 16). Sense organ of Ant. 3 of 2 simple exposed sensillae (Fig. 19). Head macrochaetotaxy and interocular chaetotaxy as in Figures 12 and 17. Prelabral and labral setae smooth (Fig. 27). Labral papillae large, each with 3–4 apical denticles (Fig. 20). Labial chaetotaxy follows formula a1–a5MEL1L2 (Fig. 18). Subapical seta of maxillary palp somewhat longer and thicker than apical seta (Fig. 15). Differentiated seta of outer labial papilla thick (Fig. 14), not reaching apex of its papilla. Along ventral cephalic groove 4+4 to 7+7 ciliated setae. Trochanteral organ with up to 24 setae (Fig. 10), usually 17. Unguis (Fig. 26) with 2 outer teeth and 4 conspicuous inner teeth. Unguiculus with one lightly serrated outer lamella. One pretarsal seta much larger than the other. Tenent hair thick and very long. Length of smooth seta opposite tenent hair of third pair of legs/length of unguiculus = 1.14 (1.03–1.35, N = 18). Body macrochaetotaxy as in Figure 13. Anterior face of collophore with many ciliated setae, 2 apicals much longer than others. Tenaculum with a long, lightly ciliated seta. Dentes slightly longer than manubrium. Mucro with 2 teeth and basal spine (Fig. 21). Female genital plate with 2 smooth setae on each valve, male plate not seen (all specimens are female).

Material examined (collected by the junior author unless otherwise noted). MEXICO. **Mexico State:** Popocatepetl volcano, *Pinus hartwegii* forest, leaf litter, 3,900 m, 29.I.1983, 10 specimens on slides and 21 in alcohol. As preceding but collected in 1982, 79 in alcohol. Popocatepetl, *Pinus* sp. forest, leaf litter. 3,000 m, 2.I.1983, 7 on slides and 24 in alcohol. As preceding but collected on 4.III.1983, 2 in alcohol. **Morelos State:** Derrame del volcán Chichinautzin, on epiphytic *Tillandsia* (Bromeliaceae), 2,430 m, 14.III.1976, 5 on slides. As preceding but collected at 2,400 m, 22.XII.1976, 1 on slide. As preceding but taken at 2,275 m, 1 on slide. Morelos, Chalcatzingo, on rupicolous *Tillandsia,* 1,400 m, 3.X.1976, 1 on slide. Morelos, San Juan, Tepoztlan, leaf litter, 2,300 m, 12.XI.1978, C. Macías, 1 on slide. **Durango State:** La Michilía, Cañada de Taray, mixed pine forest, 2,350 m, leaf litter, J. G. Palacios-Vargas and J. Najt, 1 on slide. **Federal District:** Contreras, on mosses and leaf liter, 3,100 m, 28.XI.1976, 6 on slides. **Guerrero:** road from Taxco to Tetipac, km 7, on *Tillandsia prodigiosa,* 16.X.1976, 5 on slides. **Baja California:** Los Cabos municipality, Sierra de La Laguna, mixed pine forest, leaf litter, 9.IV.1983, M. M. Vázquez, 12 on slides and 60 in alcohol. All this Mexican material is deposited in the collections of the authors.

UNITED STATES. **Arizona:** Cochise County, 3,304, 3 paratypes on slides. **New Mexico:** Los Alamos, Tandol Canyon, 2–6.VI.1976, M. I. and D. C. Lowrie, 1 on slide. Los Alamos, Mortandad Canyon, 25–26.VI.1976, pitfall trap, 5,878, 3 on slides. One specimen from the third locality is at the Illinois Natural History Survey. The other specimens are in the collection of Dr. Kenneth Christiansen, Grinnell College, Iowa.

NICARAGUA. Road from Matagalpa to Jinotega, km. 150, *Pinus ocarpus* forest, light trap, 1,200–1,300 m, I–VIII.1984, J.-M. Maes, col., 5 on slides. Three specimens are in the collection of the junior author and two are in the collection of Dr. Jean-Michael Maes, Leon University, Nicaragua.



Figs. 22–27. *Americabrya epiphyta.* 22. Claws. 23. Lateral view of labrum. 24, 25. Outer labial papilla. 26, 27. *Americabrya arida.* 26. Claws. 27. Labrum.

Americabrya epiphyta (Loring), **New Combination**
Figs. 22–25

Janetschekbrya epiphyta Loring, 1984:563–564, figs. 1–12.

The observations reported below are based on a specimen from Peru that was damaged during mounting and did not permit us to observe all the details of the pigmentation and chaetotaxy. The other characters agree with the original description except that, according to Loring, the differentiated seta of the outer labial papilla extends beyond the apex of its papilla. His figure suggests that he mistook the differentiated seta for one of the regular setae on the papilla. Loring also states that the pretarsal setae are absent but such is not the case in our specimen.

Outer setae of first labral row about 0.5× length of other setae on this row (Fig. 23). Labial chaetotaxy as in *A. arida*. Differentiated seta of outer labial papilla not reaching apex of its papilla (Figs. 24, 25). Along ventral cephalic groove 3+3 ciliated setae. Proximal third of tibiotarsus with a long, thick ciliated seta which clearly stands out from neighboring setae. One pretarsal setae much smaller than the other (Fig. 22).

Material examined. PERU, Rio Ampiyacu, Estirón, leaf litter from 30 year old secondary forest, XII.1983 and I.1984, C. Amedegnato and S. Poulain, 1 on slide.

KEY TO THE SPECIES OF *AMERICABRYA*

1. Unguiculus obliquely truncated; margins of scales serrated; body unpigmented except for a pair of very small spots on Abd. 3 and Abd. 5; Costa Rica ..... *A. matthewsi*
– Unguiculus lanceolate; margins of scales smooth; body usually with patterns of pigment 2
2. Labral papillae without apical denticles; basal pair of ungual teeth placed close to base of unguis (Fig. 22); Peru ..... *A. epiphyta*
– Labral papillae with 2–4 apical denticles (Fig. 20); basal pair of ungual teeth placed near middle of unguis (Fig. 26); southwestern United States, Mexico, Nicaragua ..... *A. arida*

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